

CLAIMS

1. Method for transmitting data over a broadband networks having a plurality of downstream channels and an upstream channel, the method comprising the steps of:
 - 5 receiving an upstream data packet from a broadband end-user unit, via said upstream channel;
 - directing said upstream data packet to an addressable destination, designated in said upstream data packet;
 - receiving a downstream data packet from said addressable destination;
 - 10 converting said downstream data packet for conveying in a selected one of said downstream channels, thereby producing transport packets;
 - directing said transport packets to said broadband end-user unit, via said selected downstream channel.
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2. The method according to claim 1, wherein said step of converting is performed according to a plurality of predetermined network resources.
- 20 3. The method according to claim 2, further comprising the step of allocating said network resources.
- 25 4. The method according to claim 2, further comprising the steps of:
 - receiving a data session resource allocation request; and,
 - allocating said network resources, according to said data session resource allocation request.
- 30 5. The method according to claim 4, further comprising the step of authorizing said data session resource allocation request.

6. The method according to claim 1, further comprising the step of controlling the transmission rate of said transport packets, via said selected downstream channel.

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7. The method according to claim 1, wherein said downstream channels are In-Band channels and where said upstream channel is an Out-Of-Band channel.

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8. Method for transmitting data packets over media transport channels, to a remote unit, said remote unit being associated with a destination address embedded in said data packets, the method comprising the steps of:

establishing a data session over a selected media transport channel;

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allocating logical media resources over said media transport channel for said data session;

converting said data packets to data transport packets embedding said allocated logical media resources, according to a media transport specification; and,

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transmitting said media transport packets via said selected at least one media transport channel.

9. The method according to claim 8, wherein said logical media resources include program number and program identification.

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10. The method according to claim 8, further comprising the step of transmitting a media program to said remote unit, as media transport packets according to said media transport specification, via said selected channel,

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said data transport packets and said media transport packets sharing a single transport program number.

11. The method according to claim 10, further comprising the steps of:
producing at least one data image according to said data session; and,
5 presenting said image in association with at least one media image produced according to said media program.
12. The method according to claim 11, wherein said step of presenting includes at least partially overlaying said at least one data image over
10 said at least one media image.
13. The method according to claim 12, wherein said step of presenting includes at least partially overlaying said at least one data image over
15 said at least one media image.
14. The method according to claim 12, wherein said at least one data includes at least one image of another media program.
15. The method according to claim 8, further comprising the steps of:
20 detecting a session, currently being processed by said remote unit;
determining the media transport channel and logical media resources which are associated with said session, and
wherein said step of establishing selects said session media
25 transport channel, and
wherein said step of allocating comprises allocating logical media resources for said data session according to said session logical media resources.
- 30 16. The method according to claim 15, wherein said allocated logical media resources include the said session program number and a

program identification number other than said session program identification number.

17. The method according to claim 8, further comprising the steps of:

- 5 receiving a session selection from said remote unit;
 determining the media transport channel and logical media resources which are associated with said session, and
 wherein said step of establishing selects said session media transport channel, and
10 wherein said step of allocating comprises allocating logical media resources for said data session according to said session logical media resources.

18. The method according to claim 17, wherein said allocated logical
15 media resources include the said session program number and a program identification number other than said session program identification number.

19. The method according to claim 8, wherein said downstream channels
20 are In-Band channels and where said upstream channel is an Out-Of-Band channel.

20. Method for synchronizing between a data session including a plurality
of data packets, and a media session including a plurality of media
25 packets, over media transport channels, the method comprising the steps of:

- converting said data packets in to data transport packets according to a media transport specification;
 converting said media packets in to media transport packets
30 according to said media transport specification;

assigning identical time stamp to selected transport packet pairs,
each said transport packet pairs comprising a selected data transport
packet and a selected media transport packet.

- 5 21. The method according to claim 20, further comprising the step of
extracting said time stamps from received transport packets and
processing together transport packets including the same time stamp.
- 10 22. Method for controlling the transmission rate of data packets which are
to be transmitted on media transport channel, comprising the steps
of:
receiving a plurality of data packets;
storing said data packets in a flow queue;
15 releasing said data packets from said flow queue at a
predetermined rate; and
converting said released data packets to transport packets.
- 20 23. The method according to claim 22, further comprising the step of
transmitting said transport packets at a predetermined rate.
24. The method according to claim 22, further comprising the step of
transmitting said transport packets at time slots selected from a
plurality of adjacent time slots, wherein at least other selected time
25 slots are not used by said transport packets.
25. The method according to claim 22, further comprising the step of
detecting flow queue overflow.

26. The method according to claim 25, further comprising the step of removing excess data packets from said flow queue, when detecting said overflow.
- 5 27. Broadband multimedia system comprising:
- a communication bus;
 - a broad band multimedia router, connected to said communication bus, to a data router and further between a plurality of media sources and a plurality of network transmitters; and
 - 10 a session manager, connected to communication bus, said session manager providing routing instructions to said router, for directing media received from said media sources to said network transmitters for transmitting over a broadband network and for directing data received from said router to at least a selected one
 - 15 of said network transmitter for transmitting over said broadband network to a specific destination.
28. The broadband multimedia system according to claim 27, wherein said session manager receives data session request, authorizes said data sessions and allocates network resources for said data session.
- 20 29. The broadband multimedia system according to claim 28, wherein said session manager assigns a layer three address to a digital STB connected to said broadband multimedia system via said broadband
- 25 network.
30. The broadband multimedia system according to claim 28, wherein said session manager assigns a network channel layer three address to a digital STB connected to said broadband multimedia system via
- 30 said broadband network.

31. The broadband multimedia system according to claim 28, wherein said session manager assigns a network channel layer three address to a digital STB connected to said broadband multimedia system via said broadband network.

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32. Session manager and IP soft switch, connected to a broadband multimedia router, receiving downstream data session requests to a selected broadband network destination, wherein said session manager and IP soft switch allocates network resources for said data session for transmitting over said broadband network to said broadband network destination.

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33. The session manager and IP soft switch according to claim 32, further detecting if said broadband network destination is tuned to a selected broadband channel and allocates said network resources according to said selected broadband channel.

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